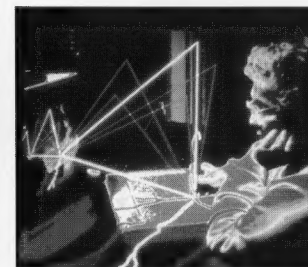


PIONEERS OF DIGITAL PHOTOGRAPHY

Peer Bode
Nancy Burson
Walter Chappell
Laurence M. Gartel
Carl Geiger
Robert Heinecken
William Larson
Graham Nash
Nam June Paik
Sheila Pinkel
Mary Ross
Sonia Landy Sheridan
Howard Sochurek
Mary Jo Toles
Woody Vasulka
Joan Truckenbrod
Julius Vitali
Linda White

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Dan's Camera * Holiday Hair * Just Born
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The Huston Foundation * The Trexler Trust



Sonia Landy Sheridan *Drawing in Time: My New Black Book*, 1982. Easel (John Dunn software), Cromemco Z-2D hardware, color photograph, 16 x 20 in.

"I actually feel that in the next few years—it won't be very long—the electronic image is really going to be the medium in photography".

Ansel Adams, 1980

This quote from America's most recognized photographer came at a time when a number of fine art photographers and visual artists were already combining photographic processes with electronic media and imagery to create new forms of expression. Their early work with photocopier, medical and electronic imaging, communications, video and computer technology helped change the notion of how photographs and art can be made. While it would take more than 15 years before imaging technologies existing in 1980 would combine personal computing and photography into a digital photography within reach of the general public, understanding the experience of these first generation artists provides a coherent view of the development of digital photography as a whole. *Pioneers of Digital Photography* explores this transitional period in the history of fine art photography by examining digital photography's precedents. More than 60 two-dimensional works by 18 artists have been assembled including exceptional vintage work from the 1960's, 70's and 80's.

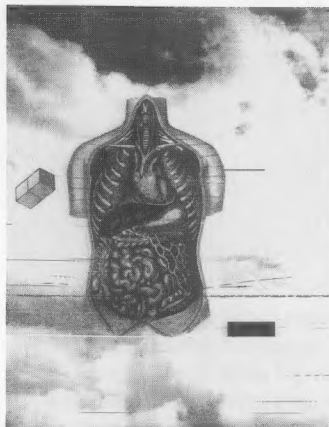
Photography and early electronic art were both shaped by the social, political and cultural climate of the 1960's and 70's. The mood of the time was to reject the past, the influence of powerful institutions and mass media in particular. "Television has attacked us for a lifetime, now we strike back" said Nam June Paik, one of the first artists experimenting with television technology.²

While technical mastery and fine print quality remained a powerful force in creative photography, influential teaching artists like Robert Heinecken encouraged photography students to think beyond traditional silver-print techniques. Many of Robert Heinecken's images were taken directly from mass media, manipulated with traditional and/or unconventional techniques, and recomposed into social commentary.³ Photographers were experimenting with



Howard Sochurek *Hand*, ca. 1979. Tomography.

Sheila Pinkel *Monument Valley Transform*. 1976. Computer printout, 13 x 37 in.

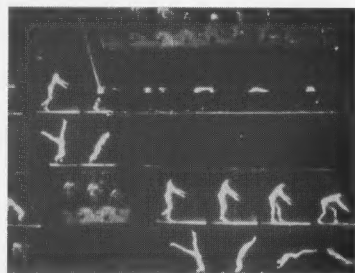


William Larson *Untitled*, 1972.
Electro-carbon print transmitted by
telephone using a Graphic Sciences Fax
Machine, Model/Dex 1, 8-1/2 x 11 in.

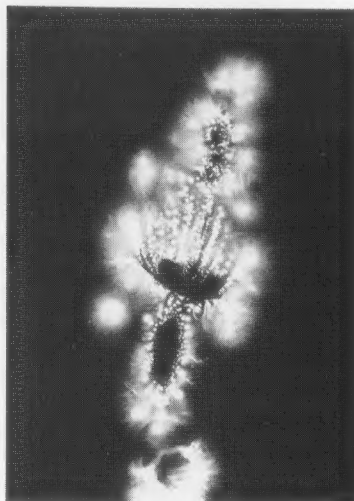
mixed media, photo sculpture, non-camera and "appropriated" imagery from a variety of sources. Older photographic processes like gum bichromate, cyanotype and platinum printing were rediscovered and employed in new contexts. In 1974, classic photographer Walter Chappell revived the Kirilian process (also known as electro-photography) to create high voltage photograms of living plants for his *Metaflora* series. Artist Mary Jo Toles adapted the Kirilian process and has been extending the concept of high-voltage photography in her work since the early 1980's. With experimentation in the arts so characteristic of the times, it was inevitable that the New Photography and new technologies would soon converge.⁴

New technologies typically evolve from the needs of government and industry then eventually spread to the rest of society. Pioneering artists were often able to access equipment before it became available to the general public. Since emerging technologies were prohibitively expensive for individuals, they collaborated with technicians and scientists at corporations, had residencies at universities or research centers, or established their own cooperatives through which they could share expenses and apply for grant money. Once they accessed equipment, artists typically began to expand the machine's original purpose. They would modify equipment, adapt it for use in a larger system, or design new tools that were more "user-friendly" for art making.

By the late 1960's black and white copy machines were the most accessible means of altering images electronically and artist Sonia Landy Sheridan among the first to exploit their creative potential. Just as exposure, processing temperature and other variables affect photographic images, light source, dyes, electrostatics, magnetics and other factors affect photocopier output. When 3M Corporation invited Sheridan into their color research labs in 1969, copy machines were mere facsimile producers. As she began taking copiers apart, exploring how they made images and identifying the ones most useful to artists, Sonia Sheridan discovered still-imaging, graphic capabilities that went far beyond their original purpose. For Sheridan and her students at the Art Institute of



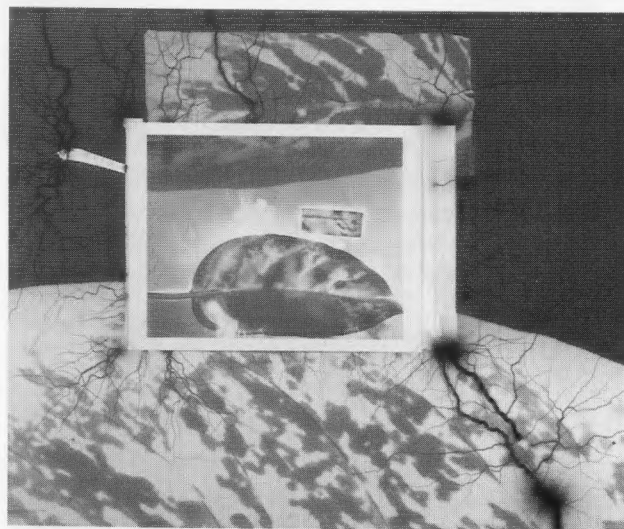
Peer Bode *Video Locomotion*
(man performing forward hand leap),
1978/1997. Digital dye sub print,
6 x 8 in.



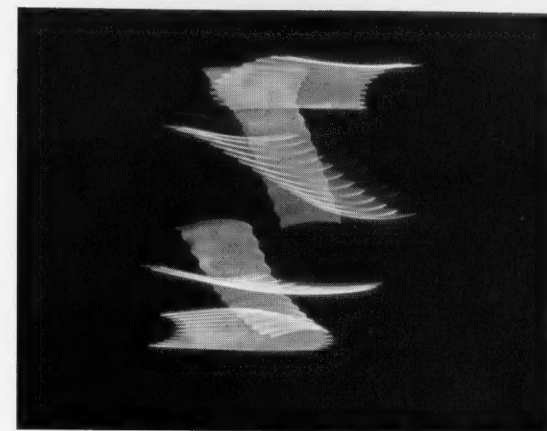
Walter Chappell *Squash Blossom*,
1974/93. Unique platinum print,
10 x 13-1/2 in.

Chicago, photocopiers eventually became just one device in a larger system of image-making tools that would include video, computers and sound.⁵ Intrigued by similar possibilities, photographer William Larson began using early Fax equipment to combine and transmit photographs, graphics, text, voice and sound by telephone.

In 1965, SONY Corporation introduced the first portable videotape recorder and camera. Nam June Paik, who had been turning TV sets into art objects for some time, was among the first artists to buy one. Considered state-of-the-art, the Portapak weighed 20 pounds, recorded black and white video, and cost a few thousand dollars. While this new technology made personal, portable video recording possible on a limited scale, it was still too expensive for many individuals. By the early 1970's, pioneering video artists had set up a number of independent, not-for-profit media centers. The Kitchen in New York City (founded by Woody and Steina Vasulka), Ralph Hocking's Experimental Television Center (ETC) in upstate New York and other media centers (including some PBS stations) scattered around the United States provided artists with



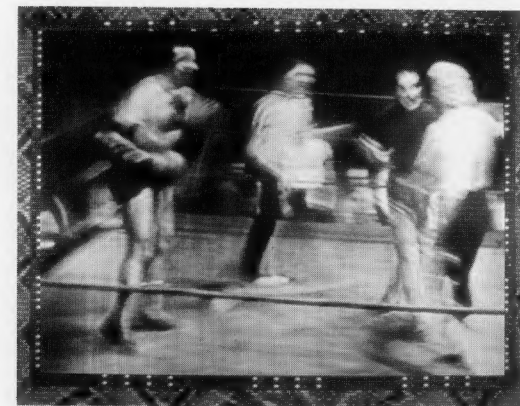
Mary Jo Toles *Recent Plant Cutbacks*, 1983. Monoprint, 20 x 24 in. Ektaprint with
8 x 10 in. Polacolor ER, enlarger projection and high-voltage exposure.



Carl Geiger *Oscillator Flight*, 1980. Chromogenic color photograph, 16 x 20 in.



**Joan
Truckenbrod** *Ripped Distance*
1979-80.
Cibachrome color
photograph,
20 x 24 in.



Linda White *Fight-recollection of Thomas Eakins*, 1980. Cibachrome color photograph,
17-3/4 x 23 in.

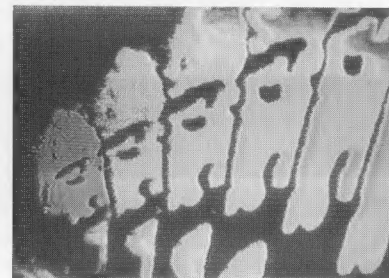


Laurence M. Gartel *Dual Personality*, 1979. Cibachrome color photograph, 20 x 24 in.

access to video technology and a place where the public could see independent work. Paik and other video artists, and designer/technicians affiliated with these media art centers, individually and collaboratively built low-cost versions of broadcast video equipment or created new video tools specifically for artists. One invention, the video synthesizer, was a limited edition, hand-built machine that used electronic circuits and devices to manipulate the TV signal. It enabled artists to mix video images, generate color, stretch shape, and create other effects at the flick of a switch or turn of a dial, and see the results immediately on the TV screen. The style of video art that resulted was called "image processing" or "video synthesis".⁶

Pioneering video artists like Peer Bode and Woody Vasulka used photography to document and promote their work, as part of video installations or as source material for videotapes.⁷ Since many of the earliest examples of video art that were made on reel-to-reel videotape have deteriorated, documentary photographs from these tapes have become an important part of the historical record. While many artists were exploring video's time-based characteristics, photographers Mary Ross, Carl Geiger, Julius Vitali and Laurence Gartel used the video synthesizer to produce still images on film.⁸ For these photographers, the video synthesizer functioned as a kind of electronic darkroom. Any and all photographic tools and techniques could be integrated with video image processing. Positive and negative images could be made instantly. "Keyers" created high-contrast effects similar to Kodaliths. Colorizers added color to black and white negatives or changed the original color of slides or prints. A computer could "grab" or freeze-frame an image from a playing videotape for further processing. As they manipulated images electronically with video and audio synthesizers, early digital prototypes and a computer, they could see the effect of each change on the TV screen. The result would be photographed from the TV screen onto color or black and white film, then printed onto photo paper, or manipulated further in the darkroom. Their experience in the image processing studio at the Experimental Television Center (ETC) and other media centers is a fairly representative example of the early convergence of photography, video and computer technology in the 1970's and 80's.

More than twenty-five years later, contemporary artists still bring their source material (videotapes, photographs, drawings, sculpture, live models, etc.) to the Experimental Television Center for image processing. A younger generation of artists brought up with personal computers and digital technology seem to find



Julius Vitali *Self-Portrait into Wolves head and paw*, 1982. Cibachrome color photograph, 8 x 10 in.



Nam June Paik *Untitled (Allen Ginsberg)*, 1985. Laser photograph, 17-3/4 x 21-3/4 in. Collection Holly Solomon Gallery, Courtesy Holly Solomon Gallery, NY.

the unique and unpredictable quirks of analog video fascinating. The fact that these vintage synthesizers and digital prototypes can be combined with contemporary media and technology to manipulate images manually, mechanically, electronically and digitally makes them still viable for creative work.

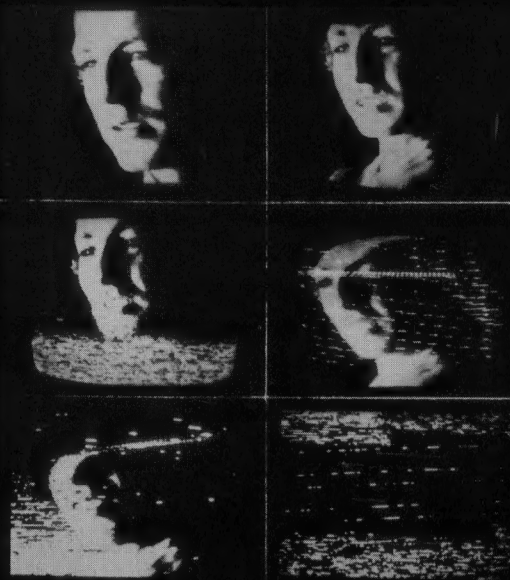
Collaboration with technicians was especially important for artists working with computers during the 1970's. While simple computers could be assembled from kits, powerful mainframes were initially in the hands of government, academic and research institutions. For example, Sheila Pinkel's *Monument Valley Transform*, an appropriation of the Ansel Adams' photograph, was realized at the University of Southern California School of Engineering Image Processing Lab. Programming was done using the card punch method of instructing the printer. Various shades of gray were simulated from ten symbols on the printer belt whipping across the front of the paper making thousands of impressions a minute. Nancy Burson's composite photographs are a product of many years of personal collaboration with engineers and software developers. In addition to meeting her artistic needs, the collaboration resulted in numerous software programs including pioneering work on a technique now known as "morphing" and various imaging programs used by law enforcement and surgeons.⁹

Linda White and Joan Truckenbrod's work demonstrates the hybrid techniques often employed by artists combining digital and analog media with photography in the late 1970's. In *Electronic Patchwork*, Truckenbrod used mathematical descriptions of phenomena in the natural world to develop a computer program that creates a series of patterns (a rather cumbersome process), turns the computer monitor upside down on a color copier to make a print of each pattern, then transfers the pattern to fabric with a hand iron. Linda White used television imagery as a "window on the world" and real-time source material for photographs. Appropriating the style of bordered Indian paintings and their depictions of everyday life, she replaced the edge of the TV screen with a computed border programmed on an Apple II computer.

As an award-winning *Life* magazine photographer, Howard Sochurek spent considerable time covering the aerospace industry and advances in medical imaging technology. Sochurek envisioned adapting these new imaging technologies into a system that could turn ordinary photographs into "electronic paintings". Eventually, he was able to buy the necessary video/computer equipment, and have it customized to his specifications. In 1979, he set up his



Robert Heinecken *Waking Up in News America*, 1984. Lithograph, 26 x 34 in.



Mary Ross *Video Suicide*, 1976



Nancy Burson *Big Brother*, (Stalin, Mussolini, Mao, Hitler and Khomeini), 1983. Gelatin silver photograph, 11-7/8 x 14-3/4 in.

own company to explore the liaison between camera and computer.¹⁰ It took years of work, and \$25,000, for Sochurek to acquire the first digital workstation offered to the general public. It wasn't until 1984, with the introduction of the Apple Macintosh, that computers became affordable and accessible with enough graphic power to make them useful art making tools for many more artists as well as the general public.

For artists using the latest advances in electronic imaging during the 1970's and early 80's, quality output was a concern. In their purest forms, computer and video imagery are virtual media. They exist as binary numbers or electronic waveforms displayed on monitors or TV sets. Scanners and printers that are common today were non-existent, crude, extremely expensive or likely to be in the hands of government, science or industry. For practical and economic reasons, photography provided a way for pioneering artists to make, document, and exhibit their work. In the 1980's, video artist Nam June Paik began making still photographs from his videotapes. While acknowledging that stopping the action often revealed images far more beautiful still than in motion, he also recognized the economic reality that collectors often prefer art that can be hung on a wall.¹¹

In the early 1990's, to satisfy his own requirements for quality digital output, musician and photographer Graham Nash and his associates spent more than 2 years modifying the Iris ink jet printer to print fine art images on thick archival art paper, rather than the regular Iris proofing paper which was plastic and not archival. Tweaking machines and continuous research eventually evolved into Nash Editions, a fine art printmaking studio.¹² Like early inventors of the photographic process, pioneering artists continue to make machines and new technologies conform to their vision.

Mary Ross



Graham Nash
Self-Portrait #2, 1998.
Digital ink jet print,
27 x 26 in.

Notes and References

¹ Jim Hughes, 'Ansel Adams on art, commerce and the future of photography', *Popular Photography* (January 1980), p. 159.

² Toni Stooss and Thomas Kellein, general editors. *Nam June Paik: Video Time - Video Space*, New York, 1993, p. 12.

³ Louise Katzman, *Photography in California 1945-1980*, New York/San Francisco, 1984, p. 50.

⁴ Catherine Reeve and Marilyn Sward, *The New Photography*, Englewood Cliffs, New Jersey, 1984, contains descriptions of alternative photographic processes including Robert Heinecken's 'videograms', Sonia Landy Sheridan's Generative Systems approach, Sheila Pinkel's work with Xeroradiography and a detailed description of high-voltage photography by Mary Jo Toles.

⁵ Sonia Landy Sheridan, 'Generative Systems versus Copy Art: A Clarification of Terms and Ideas', *Leonardo*, vol. 16, No. 2, (1983), pp.103-108.

⁶ Margot Lovejoy, *Postmodern Currents: Art and Artists in the Age of Electronic Media*, Ann Arbor, Michigan, 1989.

⁷ See Woody Vasulka and Scott Nygren, 'Didactic Video: Organizational Models of the Electronic Image', *Afterimage*, vol. 3, No. 4, (October 1975) pp. 9-12 and exhibition catalog, *The Vasulkas, Steina: Machine Vision, Woody: Descriptions*, Albright-Knox Art Gallery, Buffalo, NY, 1978, pp.15-19 for an extensive discussion of Woody Vasulka's photographs of the cathode ray tube.

⁸ Victor Ancona, 'Video Stills: A New Art Form', *Videography* (January 1981), pp. 44-46, 65-71 and Mary Ross, 'Making Video Slides', *Modern Photography* (April 1981), pp. A11-A13.

⁹ Judith Barry, 'Nancy Burson's Mirror', *DemiMondaine* (Summer 1997), p. 38.

¹⁰ See 'Moon Technology for a New Art Form', *Spinoff*, a publication of the National Aeronautics and Space Administration, (1979) and Howard Sochurek, *Medicine's New Vision*, Easton, Pennsylvania, 1988.

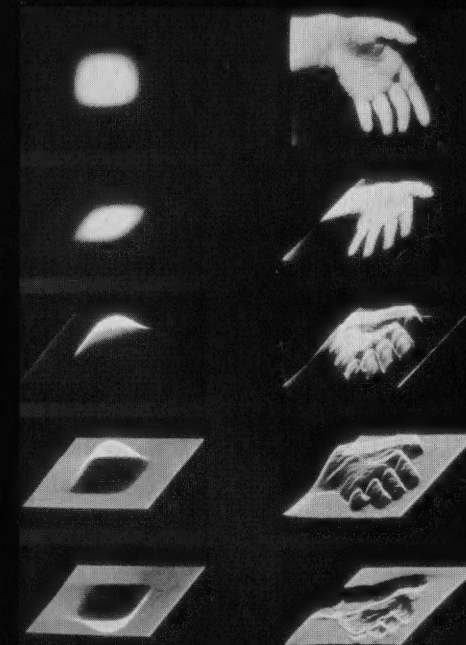
¹¹ Laurence M. Gartel, *A Cybernetic Romance*, Layton, Utah, 1984. Introduction by Nam June Paik, pp. 10-11.

¹² Jean Marie Angelo, 'Singer/Musician Graham Nash Pioneers Another Art Form: Digital Printing', *Computer Pictures*, (July/August 1993), p. 17, and Therese Mulligan, *Digital Frontiers: Photography's Future at Nash Editions*, exhibition catalog, George Eastman House, International Museum of Photography and Film, Rochester, NY, 1998.

A complementary exhibition of contemporary images by artists working with digital photography has been selected by Open Space Gallery director Julius Vitali and includes work by:

Steve Aubrey
Les Barta
Gary Beeber
Steven Berkowitz
Kimberly Burleigh
Neil Farkas
Lisa A. Johnston
Jane Porter-Jacobs
J.P. Melendez
Edward Shmunes

PIONEERS OF DIGITAL PHOTOGRAPHY



Woody Vasulka *Time/Energy Structure of the Electronic Image*, 1974

CURATED BY MARY ROSS

Hosted by

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913 Hamilton Boulevard
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JULY 8 - AUGUST 11, 1998